Pest Alert

United States
Department of
Agriculture

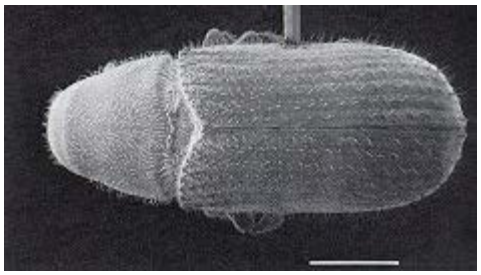
Forest Service

Northeastern Area

NA-TP-05-93

New Introduction - Common Pine Shoot Beetle, *Tomicus piniperda* (L.)

Figure 1.Adult Beetle (Scale line=1mm)



The common (or larger) pine shoot beetle, *Tomicus* (=*Blastophagus*) *piniperda* (L.), was discovered near Cleveland, Ohio in July 1992. As of this writing, it is now in six states: Illinois, Indiana, Michigan, New York, Ohio, and Pennsylvania. Adults of the common pine shoot beetle are cylindrical and range from 3 to 5 mm in length (about the size of a match head). Their head and thorax are shiny black while the wing covers are reddish-brown to black. Eggs are 1 mm long, oval, smooth, and shiny white. Larvae are legless, slightly curved, have a white body and brown head, and can reach 1/4 inch (5 mm) in length when fully grown.

Life History

Figure 2. Mined shoots os Scotch Pine. (Arrow indicates entrance gallery)

Tomicus piniperda completes one generation per year throughout its native range of Europe and Asia. Overwintering adults initiate flight on the first warm (50-54° F) days of spring which probably occurs in February or March in the Lake States in the northeastern United States. Adults quickly colonize either recently cut pine stumps, logs, or, at times, infest the trunks of severely weakened trees. If necessary, adults can fly ½ mile (1 km) or more in search of host material. Pine is the principal host tree. When populations are high, adults may breed in spruce, fir, and larch logs that occur in stands mixed with pine. Various species of blue stain fungi are associated with this bark beetle.

Adults use host volatiles such as alpha-pinene to locate suitable host material for breeding. *T. piniperda* does not appear to produce an aggregation pheromone (sex attractant). Females initiate gallery systems and soon one male joins each female. After mating, females construct individual vertical egg galleries within the inner bark and outer sapwood. Egg galleries extend 4 to 10 inches (10 - 25 cm) in length. Females lay eggs singly in niches that are cut into both sides of the egg gallery. After hatching, larvae construct horizontal feeding galleries that are 1.5 to 3.5 inches (4 - 9 cm) long. Most larvae complete development, pupate, and transform to adults in May and June.

The newly formed adults tunnel through the outer bark, creating circular exit holes about 2mm in diameter. They then fly to the crowns of living, healthy pine trees of all ages, but prefer the taller trees in any particular area. Adults feed primarily inside lateral shoots, mostly in the

upper half of the crown from May through October. During this period of maturation-feeding, each adult may destroy 1 to 6 shoots. Scotch pine is preferred, but other pine species have been infested in the Lake States including Austrian pine, eastern white pine, red pine, and jack pine.

Figure 3. Damaged shoots on Scotch Pine.

Adults usually enter shoots in the one-year old or current year's growth. Normally, one beetle infests each shoot. They tunnel into the center and bore outwards, hollowing out 1 to 4 inches of the shoot. After several weeks, adults often emerge and enter other shoots. Infested shoots generally bend near the point where the beetles entered, turn yellow to red, eventually break off, and fall to the ground.

In the Lake States, adults exit twigs soon after the first frosts in October and November and enter the thick bark at the base of pine trees to spend the winter. Adults typically overwinter at the base of the same pine tree that supported their maturation feeding. A few beetles may pass the winter inside twigs in the crown.

Damage

The most severe damage caused by *T. piniperda* is the destruction of shoots during maturation feeding. When shoot feeding is severe, tree height and diameter growth are reduced.

Generally, the reproduction phase of this beetle in pine stumps and slash causes little economic damage. However, in China and Poland, *T. piniperda* has attacked and killed apparently healthy pine trees.

For more information:

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